



# Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using a Difference-in-Differences Approach to Assess Clinical Outcomes

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### Abstract

Public health surveillance systems in Rwanda are critical for monitoring disease prevalence and guiding interventions to improve clinical outcomes. However, their effectiveness remains under scrutiny, necessitating methodological evaluations. A difference-in-differences approach was employed to analyse pre- and post-intervention data. Data from existing surveillance systems were utilised, with robust standard errors accounting for potential confounders. The analysis revealed a significant improvement in the proportion of patients receiving timely treatment (from 40% to 65%) following the introduction of new protocols. This study provides evidence that the public health surveillance system significantly enhanced clinical outcomes, justifying its continued implementation and further refinement. Public health authorities should prioritise ongoing evaluation and potential enhancements based on this research's findings. public health surveillance, difference-in-differences, clinical outcomes, Rwanda Treatment effect was estimated with  $text \{ logit \} (\pi) = beta 0 + \beta ^ - p X ,$  and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, Public health surveillance, Difference-in-differences, Quasi-experimental design, Outcome measurement, Epidemiology, Statistical analysis*

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